THE OCCURRENCE
of
STRABISMUS & OCULAR
PATHOLOGY
in an
Institutionalized Sample of Mentally Retarded Individuals

Kenneth C. Koslowe, O.D., M.S.1,3
Joav Merick, M.D.2
Chaya Aminadav, Ph.D.2
Uri Ynon, Ph.D.1
Hilme Arda, M.A.2

1. Goldschleger Eye Research Institute, Sackler Faculty of Medicine, Tel Aviv University, Chaim Sheba Medical Center, Tel Aviv
2. Office of the Medical Director, Division for the Mentally Retarded, Ministry of Labor and Social Welfare, State of Israel, Jerusalem
3. Bar Ilan University, Department of Optometry, Ramat Gan, Israel

Abstract
As part of an ongoing multi-disciplinary assessment and intervention project, a group of 39 mentally retarded children and adults received eye examinations. This paper focuses on two aspects of the visual analysis; strabismus and ocular pathology. The occurrence of each of these entities exceeds the expected ranges for a random population and concurs with previously found reported findings in retarded samples. Some 40% of the subjects had strabismus or a lack of binocular vision while 41% had one or more ocular pathologic condition. In most cases, these deficits were not previously noted in the patient’s files and/or the consequences of such conditions were not known to the care giving staff.

Key Words
ocular pathology, mental retardation, strabismus, vision

In early 1998 a pilot project was funded to assess the efficacy of a multi-disciplinary diagnostic and treatment approach to the institutionalized retarded population in Israel. The involved professions were optometry, medicine, psychology, physical and occupational, speech and dietary therapies. The project was based on evidence of the multiple system handicaps in the retarded population.1-5 It has also been reported that these deficits often go untreated either through lack of diagnosis or unawareness of their importance. High on the list of such deficits are vision and audition.2-11 The present study focuses on two areas of the visual analysis; strabismus and ocular pathology. These aspects were chosen because of their possible impact on treatment regimens conducted by the staff at the facilities. Additionally several published studies published by two of the present authors, using animal models have shown the dramatic effects that various forms of sensory disturbance and deprivation can have on the developing visual system.12-15 We postulated that at least some in the retarded population could have been subjected to levels of visual-motor deprivation that could be evidenced in conditions such as refractive errors, strabismus and ocular pathology. The influence and impact of refractive errors is definitely of import as has been well documented in previous research.3,6,16-19 One might assume that the presence of strabismus would not be a major concern (other than cosmesis) in the treatment of the retarded. However, our experience indicates that in many such cases the treatment staff is not even aware of the existence of strabismus, or which eye is the intact eye. This can influence the success or lack of success in working with these subjects on visual awareness and visual tracking. Similarly, aside from the medical necessity to treat ocular pathologies, a lack of knowledge of the functional consequences of these conditions can negatively effect treatment strategies.

Subjects
The subjects in the current report were drawn from two facilities housing severely and profoundly retarded adults and children. The majority of the subjects were multi-handicapped with various levels of limb paresis or skeletal abnormalities accompanying the retardation. The total subject population was 39 (20 males and 19 females) with an age range of 12-74 and an average age of 47 (SD= 20.8). All visual testing was performed at the facilities by the principal author in surroundings that were familiar to the subjects and as non-threatening as possible. There was no initial pre-selection of candidates to those specifically suspected of visual deficits; however, after interviewing the care giving staff, those subjects who were suspected of having visual defects were examined first. All subjects seen were full time residents and not part of the day center population of the facilities.

Methods
Subjects were tested utilizing monocular direct ophthalmoscopy (with dilation), cycloplegic retinoscopy, ocular motility targets and transillumination. A cover test and/or a Hirschberg evaluation was performed on each subject along with an assessment of the near point of convergence and pupil reactivity. Assistance in maintaining and stimulating fixation and
Some 15 (40%) had some form of strabismus in this institutionalized men-
tracking was given by staff members at each facility who were known to the sub-
effects, visual tracking capabilities and/or ocular muscle restrictions for many of the subjects.

While it seems clear that the strabismus and ocular pathology were not the primary causes for the subjects’ retardation, a lack of awareness of these defects could have had a negative effect on pro-
groups instituted to train and educate these patients.

Acknowledgments
Funding for this project was provided by the AKIM organization for which the authors would like to express their deep appreciation. The project was also facilitated and organized by the Israel Ministry of Labor and Social Welfare.

References
1. Ackland MJ, Wade RW. Health status of Vic-
2. Ciner EB, Appel S, et al. Assessment and re-
5. Gnadt G, Wesson MD. A survey of the vision assessment of the developmentally disabled and multi-handicapped in University Affili-
6. Koslowe KC. Refractive errors and visual anomalies as related to the degree of retarda-
tion in a Down’s Syndrome population. J Behav Optom 1998;9(1):7-10
7. Evenhuis HM, Theunissen M, Denkers I, Verschure H, Kemme H. Prevalence of visual and hearing impairment in a Dutch institution-
9. Warburg M. Visual impairment in adult people with moderate, severe, and profound intel-
10. Haugen OH, Hovding G. Strabismus and bin-
ocular function in children with Down syn-

Volume 14/2003/Number 2/Page 44 Journal of Behavioral Optometry

Corresponding author:
Dr. Kenneth C. Koslowe
Goldschleger Eye Research Institute
Sackler School of Medicine, Tel Aviv University, Chaim Sheba Medical Center
Tel Aviv, Israel
koslowk@mail.biu.ac.il
Date accepted for publication:
January 20, 2003